

What is claimed is:

1. A manifold for supplying a stack of metallic, microchannel heat sinks each mounting a laser diode bar with coolant fluid, said heat sinks forming part of series-connected electrical path, comprising:

an insulating body having a plurality of offset parallel planes for mounting a respective plurality of said microchannel heat sinks; said planes terminating coolant channels in fluid communication with corresponding channels in said heat sinks; said coolant channels communicating with adjacent ones of said heat sinks being separated from each other by at least the width of one of said heat sinks to increase the electrical resistance of said fluid path between adjacent ones of said heat sinks.

2. A manifold according to claim 1 wherein said parallel planes are minimally offset from each other so as to concentrate the optical power emitted by said laser diode bars.

3. A series-connected stack of metallic, fluid-cooled microchannel heat sinks each bearing a respective laser diode bar for emitting optical power,

an insulating body having a plurality of horizontally offset parallel surfaces for mounting a respective one of said heat sinks; said surfaces having coolant channels in fluid communication with corresponding channels in said heat sinks; said coolant channels communicating with adjacent ones of said heat sinks being separated from each other by at least the width of one of said heat sinks to increase the electrical resistance of said fluid path between adjacent ones of said heat sinks; and

a plurality of optical reflective surfaces for deflecting the optical power emitted by said laser bars into a plurality of vertically stacked beams.

4. An assembly for providing a concentrated, vertically stacked array of laser beams from a horizontally offset array of electrically serially-connected metallic microchannel heat sinks each bearing a laser diode bar, comprising:
 - a coolant channel bearing manifold having horizontally offset planes each mounting a respective one of said heat sinks; the coolant channels serving adjacent ones of said heat sinks being separated from one another to increase the electrical resistance of the fluid path between adjacent ones of said heat sinks; and
 - a series of stepped optical deflectors for re-arranging the laser beams emitted from the laser diode bars into vertical stack.
5. An assembly according to claim 4 wherein said manifold is of insulating material.
6. An assembly according to claim 5 wherein the coolant in said cooling channels is water.
7. An assembly according to claim 5 wherein said stepped optical deflectors are glass plates each having a beveled edge positioned to receive the light output of a respective one of said laser diodes.